

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

SPECIFICATION FOR
CANTEEN, WATER, POLYETHYLENE, 1-QUART

This amendment forms a part of Forest Service Specification 5100-84B, dated January 1984.

PAGE 1

2.1 Issues of documents. Add after Standards:

DRAWINGS

USDA FOREST SERVICE

MEDC-802 - Canteen, Water, Polyethylene, 1-Quart

PAGE 2

3.3 Design and construction. Delete and substitute:

"3.3 Design and construction. The canteen with cap shall conform in all respects to the drawing listed in 2.1 and as specified herein (see 6.3)."

PAGE 3

3.3.1 Body. In the last sentence delete "figure 1" and substitute "the drawing listed in 2.1."

PAGE 7

4.4.3.2 Dimensional examination. AT the end of the first sentence delete "figure 1" and substitute "the drawing listed in 2.1."

4.4.3.2.1 Examination for wall thickness. Delete the last sentence.

6.3 Material shrinkage. AT the end of the last sentence delete "figure 1" and substitute "the drawing listed in 2.1."

Delete figure 1 in its entirety.

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SPECIFICATION FOR

CANTEEN, WATER, POLYETHYLENE, 1-QUART

1. SCOPE

1.1 Scope. This document covers a plastic water canteen having a nominal capacity of 1 quart.

2. APPLICABLE DOCUMENTS

2.1 Government documents. Unless otherwise specified, the following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

- | | |
|-----------|-------------------------------------------------------------------------------------------------------|
| L-P-390 | - Plastic, Molding and Extrusion Material, Polyethylene and Copolymers (Low, Medium and High Density) |
| PPP-B-636 | - Boxes, Shipping, Fiberboard |

STANDARDS

FEDERAL

- | | |
|-------------|-----------------------------------------|
| FED-STD-123 | - Marking for Shipment (Civil Agencies) |
|-------------|-----------------------------------------|

MILITARY

- | | |
|-------------|-------------------------------------------------------------|
| MIL-STD-105 | - Sample Procedures and Tables for Inspection by Attributes |
|-------------|-------------------------------------------------------------|

(Copies of documents required by manufacturers in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USDA Forest Service, Missoula Equipment Development Center, Missoula, MT 59801, by using the Specification Comment Sheet appearing at the end of this document or by letter.

OTHER GOVERNMENT DOCUMENTS

Law and Regulations

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder

(Application for copies should be addressed to the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.)

2.2 Order of precedence. In the event of conflict between the text of this document and the reference cited herein, the text of this document shall take precedence.

3. REQUIREMENTS

3.1 First article. Unless otherwise specified (see 6.2), the contractor shall furnish three completed units for first article inspection and approval (see 4.3 and 6.4).

3.2 Materials (see 6.5)

3.2.1 Polyethylene and polypropylene. The polyethylene and polypropylene used in the manufacture of the canteen (body and cap), and the antioxidants or other substances incorporated in the plastic shall conform to the Food, Drug, and Cosmetic Act requirements for use in contact with drinking water. The finished canteen shall impart no objectionable odor and shall impart no noticeable taste when tested in accordance with 4.4.4.1.

3.2.1.1 Body material. The body shall be made from high density (homopolymer) virgin polyethylene conforming to type I, class H, grade 1, category 4 or 5 of L-P-390. Clean, unburned material in the form of imperfect parts, tails, neck flash or other scrap of the same composition as the virgin material and produced in the molding or finishing operation may be reground and mixed with the virgin material. When reground is mixed with the virgin material, the reground shall not exceed a level of 35 percent by weight of the blended mixture. The color shall be opaque white.

3.2.1.2 Cap material. The cap shall be manufactured from the material specified in 3.2.1.1 or from polypropylene. When polypropylene material is used the cap shall have a polyethylene liner with a minimum thickness of 0.030 inch.

3.3 Design and construction. The canteen with cap shall conform to the design, shape, and dimensions as shown in figure 1 (see 6.3).

3.3.1 Body. The body less cap shall be blow molded in high density homopolymer polyethylene as specified in 3.2.1.1 and by a process in which the body is blown and molded in one piece, and not as a result of a sheet forming operation. The lip of the body neck which forms the sealing surface against the cap on assembly, shall be flat, smooth and free from sink marks and depressions or other defects which may affect proper sealing. The canteen neck shall be threaded for a minimum of one full turn. The threads shall be fully formed and free from flash and thread misalignment. All parting lines shall be free from flash except that flash extending not more than 1/32 inch at the bottom pinch-off area shall be permitted. There shall be no interference upon engagement of the cap to its fully seated position. The body shall be blow molded in such a manner that the material shall be distributed to conform to the interior and exterior shape, weight and general overall design as shown in figure 1.

3.3.2 Canteen cap. The cap shall be a minimum of 0.040 inch thick and shall fit the filler neck thread sufficiently tight to prevent overriding of the thread when screwed on hand tight. The hand tightened cap shall form a seal sufficiently tight to prevent water leakage from the canteen when tested as specified in 4.4.4.2.

3.3.3 Bearing surface. The bottom shall have a flat bearing surface. When the canteen is set upright on a level surface it shall not rock more than 1/8 inch.

3.3.4 Threads. The threads for the canteen and cap shall finish 43mm by 400.

3.4 Capacity. The liquid capacity of the canteen when filled to the bottom of filler neck, shall not be less than one quart.

3.5 Impact resistance. The canteen, when filled with water to the bottom of filler neck and the cap screwed on hand tight shall show no evidence of leakage when tested as specified in 4.4.4.3.

3.6 Finish. The interior and exterior surfaces of the canteen and cap shall have a smooth and lusterless finish throughout; and shall be free of dirt, dust, grease and foreign matter. The finish shall be produced from a die which has cavity surfaces finished in vapor blast, water hone or similar satin finish and not by the application of any protective coating, lacquers or other materials.

3.7 Workmanship. The canteen shall be clean, smooth, well finished and free from bubbles, cracks, pinholes, dirt, warpage, blisters and scratches. The canteen shall conform to the quality of product established by this document. The occurrence of defects shall not exceed the applicable acceptable quality levels established herein.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract, or purchase order the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in contract or purchase order, the contractor may use his own or any

other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the document where such inspections deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Certificate of compliance. Where certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

1. First article inspection (see 4.3).
2. Quality conformance inspection (see 4.4).

4.3 First article inspection. When a first article is required (see 6.2), it shall be examined for defects listed in 4.4.3.1 and 4.4.3.2. The presence of any defect, any dimension not within specified limits, or failure of any test shall be cause for rejection of the first article.

4.4 Quality conformance inspection. Except as otherwise specified herein, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.4.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents unless otherwise excluded, amended, modified, or qualified in this document or applicable purchase document.

4.4.1.1 Material identification. Identification of the materials for the body and cap may be accepted on the basis of a certificate of compliance for requirements specified in 3.2.1. A certificate of compliance shall be furnished with each lot stating that the body material does not contain more than 35 percent reground material and meets the requirements of the reground material as specified in 3.2.1.1.

4.4.2 In-process inspection. In-process inspection shall be conducted to see that accomplishment of the following is in accordance with the document requirements. Whenever nonconformance is noted, correction shall be made to the items affected and the process.

<u>Requirement, operation or assembly</u>	<u>Requirement paragraph</u>
Canteen body is blow molded in one piece	3.3.1

4.4.3 End item inspection. The end item shall be examined for the defects indicated in 4.4.3.1 and 4.4.3.2. The lot shall consist of all completely fabricated canteens offered for inspection at one time. The sample unit shall be one completely fabricated canteen. The inspection levels and the acceptable quality levels (AQLs) shall be in accordance with 4.4.3.3.

4.4.3.1 Visual examination.

Examine	Defect	Classification	
		Major	Minor
Quality and finish	Color not as specified	X	
	Exterior surface of body and cap not smooth and not lusterless throughout	X	
	Inside surface of cap, including threaded portion, not smooth	X	
	Bubbles		X
	Finish produced by application of coating, lacquer, or other organic material	X	
	Any cut, tear, hole, burn, break, crack or mend in canteen body or canteen cap	X	
	Weld mark, sink mark, shrink mark, dulling of surface, roughness, or abrasion		X
	Discoloration, surface deterioration, foreign inclusion, grease, orange peel, pit, rough finish or other imperfection	X	
Design and construction	Objectionable odor	X	
	Varies from specified design and construction	X	
	Not fully formed		X
Workmanship and assembly (general)	Evidence body is not formed by one piece blow molded process	X	
	Evidence of poor or inadequate mold fill	X	
	Any gate not trimmed flush with the molded surface		X
	Component missing or operation not as specified	X	

<u>Examine</u>	<u>Defect</u>	<u>Classification</u>	
		<u>Major</u>	<u>Minor</u>
Workmanship and assembly of body	Weight not as specified	X	
	Sealing surface of lip is not flat, smooth, and free from sink marks or depression		X
	Interior of neck opening not smooth, i.e., surface shredded, chipped, scratched, abraded or otherwise impaired	X	
	Out of round distortion at the parting line of the closure lip prevents cap from sealing	X	
	Canteen rocks more than 1/8 inch when placed on a flat surface		X
	Canteen body distorted resulting in weak spot at parting line	X	
	Flash at bottom pinch-off area on parting line extending more than 1/32 inch		X
	Flash appearing on other parting lines		X
Workmanship and assembly of cap	Sealing surface in cap is irregular, is not smooth or contains high or low points	X	
	Outside parting line on canteen cap other than line only		X
	Flash appearing on parting line		X
	Canteen cap will not screw onto canteen	X	
	Cap binds when screwing onto canteen	X	
	Evidence that the canteen cap does not seal when engaged on canteen	X	
	Liner missing (when applicable)	X	
Workmanship of threads	Threads in cap or on body neck stripped, not permitting tight closure	X	
	Canteen neck or canteen cap does not contain 1 full turn of thread	X	

<u>Examine</u>	<u>Defect</u>	<u>Classification</u>	
		<u>Major</u>	<u>Minor</u>
Workmanship of threads (cont)	Threads improperly gaged or improperly aligned on component preventing seal at closure	X	
	Threads not fully formed, not free from flash, misaligned at parting line or other imperfection	X	
Cleanliness	Dirt, grease, dust or other foreign matter on inside or outside of canteen	X	
	Plastic shavings on the inside of canteen		X

4.4.3.2 Dimensional examination. The canteens shall be examined for defects in wall thickness as specified in 4.4.3.2.1 and for other dimensional defects as specified in 4.4.3.2.2 and figure 1. The sample unit for each examination shall be one canteen.

4.4.3.2.1 Examination for wall thickness. For this examination, the canteens shall be cut in half along the parting line and each half cut 90° to the parting line to give four quarters. Measurements to the nearest 0.001 inch shall be made at the thinnest area of each quarter. A failure of any sample unit to meet the requirements shall be scored as a defect. Measurements on a sample unit shall be averaged only for measurements equal distance from the bottom at locations shown in figure 1.

4.4.3.2.2 Examination for dimensions other than wall thickness. For this examination, all canteen dimensions other than wall thickness shall be measured. Caps shall be measured for wall and liner thickness. Any dimension that is not within the specified tolerances shall be classified a defect.

4.4.3.3 Inspection levels and AQLs. The inspection levels and AQLs expressed in defects per hundred units shall be as follows:

<u>Paragraph</u>	<u>Inspection level</u>	<u>AQL</u>	
		<u>Major</u>	<u>Total</u>
4.4.3.1	I	4.0	10.0
4.4.3.2.1	I	one class	1.0
4.4.3.2.2	S-2	one class	6.5

4.4.4 End item testing. Testing shall be for completely fabricated canteens. The sample unit shall be one completely fabricated canteen with cap. The sample size for the designated lot size shall be as shown below. There shall be no evidence of failure of any sample unit to meet the requirements as specified.

<u>Lot size</u>	<u>Sample size</u>
800 or less	2
801 to 22,000	3
22,001 and over	5

4.4.4.1 Taste Test. The finished canteens shall be thoroughly rinsed with distilled water. Then the canteen shall be filled to the bottom of the filler neck with distilled water and allowed to set at room temperature for a minimum of 8 hours. Any noticeable taste to the water shall constitute failure.

4.4.4.2 Cap sealing test. The canteens shall be filled with water to the bottom of the filler neck and the cap screwed on hand tight. The canteen shall be cloth dried and shall be turned upside down for 3 minutes. The canteen shall not be held by or set on the cap. Any evidence of leakage shall be classified as a failure. The canteen used for this test may be used for the impact test (4.4.4.3).

4.4.4.3 Impact test. The canteens shall be filled to the bottom of the filler neck with water and the cap screwed on hand tight. The canteen shall be dropped, with filler neck up, from a height of 3 feet to the impact surface. The impact surface shall be dry clean concrete. The canteen shall then be examined for any evidence of fracturing or leakage of the cap or body. Leakage or fracturing shall constitute failure.

4.4.5 Packaging inspection. An examination shall be made to determine that packing and marking comply with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully packaged except that it shall not be palletized and it need not be closed. Shipping containers fully packaged that have not been palletized shall be examined for defects in closure. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 defects per hundred units.

<u>Examine</u>	<u>Defect</u>
Markings	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing. Any component damaged, affecting serviceability.
Workmanship	Inadequate application of components, such as: incomplete closure of container flaps, improper taping, loose strapping, inadequate stapling. Bulged or distorted container.
Contents	Number of canteens per container is more or less than required.

5. PACKAGING

5.1 Packing. One hundred canteens with caps screwed on finger tight, shall be in a snug fitting fiberboard shipping container conforming to type CF or SF, SW or DW, class domestic, grade 200 of PPP-B-636.

5.2 Marking. In addition to any special marking required by the contract or purchase order, shipping containers shall be marked in accordance with FED-STD-123.

6. NOTES

6.1 Intended use. The canteen is intended primarily for use by wildland firefighters for carrying drinking water.

6.2 Ordering data. Acquisition documents should specify the following:

- a. Title, number, and date of this document.
- b. When first articles are not required for inspection and approval (see 3.1, 4.3 and 6.4).

6.3 Material shrinkage. Since the shrinkage characteristics of plastic materials are well recognized, it is the responsibility of the contractor to compensate for this factor in mold design in order to produce and supply a finished product in accordance with figure 1.

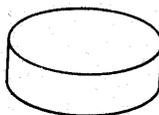
6.4 First article. When first articles are required, they shall be inspected and approved under the appropriate provisions of the contract. The first articles shall consist of three completed canteens. The contracting officer should include specific instructions in all acquisition documents, regarding arrangements for selection, inspection and approval of the first articles.

6.5 Recycled material. It is encouraged that recycled material be used when practical as long as it meets the requirements of this document (see 3.2).

6.6 Preparing activity. USDA Forest Service, Missoula Equipment Development Center, Missoula, MT 59801.

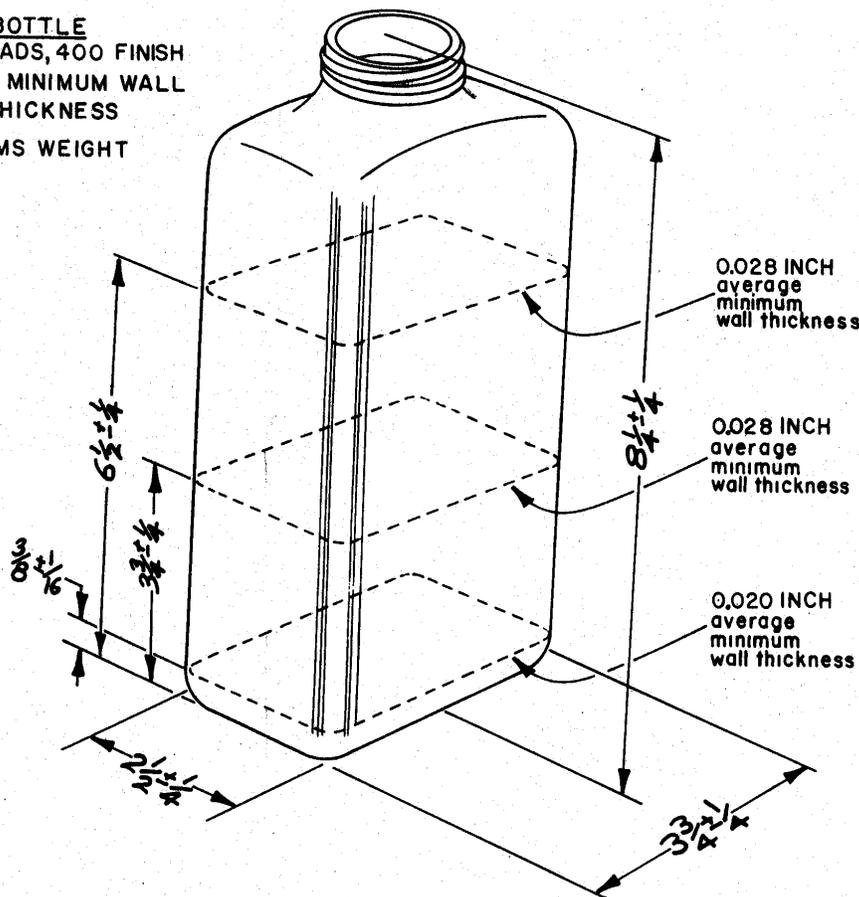
SPECIFICATION 5100-848

CAP
43mm THREADS, 400 FINISH,
0.040 INCH MINIMUM WALL
THICKNESS



CAP LINER
(ONLY WHEN POLY PROPYLENE
CAP IS USED)
0.030 INCH MINIMUM
THICKNESS

BOTTLE
43mm THREADS, 400 FINISH
0.012 INCH MINIMUM WALL
THICKNESS
55±2 GRAMS WEIGHT



CANTEEN, WATER,
POLYETHYLENE, 1 QUART

FIGURE 1

Standardization Document Improvement Proposal

This form is provided to solicit beneficial comments that may improve this document and enhance its use. Contractors, government activities, manufacturers, vendors, and users are invited to submit comments to:

USDA Forest Service
Missoula Technology and Development Center
Building 1, Fort Missoula
Missoula, MT 59804-7294

Attach any additional pertinent information that may be of use in improving this document to this form and mail in an envelope. A response will be provided when the submitter includes their name and address.

NOTE: This form shall not be used to submit requests for waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the document, or to amend contractual requirements.

Document Identification: **5100-84B - Canteen, Water, Polyethylene, 1 Quart**

Submitter's Name (Optional. Please print or type):	Submitter's Organization and Address:
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<input type="checkbox"/> Vendor <input type="checkbox"/> User <input type="checkbox"/> Manufacturer	_____
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Date: _____	_____

<input type="checkbox"/> Has any part of the Document created problems or required interpretation in procurement use?
<input type="checkbox"/> Is any part of the Document too rigid, restrictive, loose, or ambiguous? Please explain below: Give paragraph number and wording: _____

Recommended change(s): _____

Reason for recommended change(s): _____

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